

Application number 10/665,991  
Amendment dated March 15, 2005  
Reply to office action mailed December 15, 2005

PATENT

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

Claims 1-3 (Cancelled).

Claim 4. (Original) A pressure sensor comprising:  
a horizontal diaphragm having a top and a bottom;  
a silicon sidewall formed using MEMS mirco-machining and extending from the bottom of the diaphragm, the sidewall having an interior side forming a backside cavity, the backside cavity having a backside opening, the interior side substantially vertical; and  
a boss attached to the bottom of the diaphragm, the boss separate from the sidewall.

Claim 5. (Original) The pressure sensor of claim 4 wherein the silicon sidewall is formed using deep reactive ion etch.

Claims 6-8 (Cancelled).

Claim 9. (Original) A pressure sensor comprising:  
a diaphragm and a sidewall, the sidewall having an interior side defining a backside opening, the sidewall extending from the diaphragm to the backside opening, wherein the interior side of the sidewall is formed using a deep reactive ion etch and is substantially orthogonal to the diaphragm, and  
wherein the backside opening is non-rectangular.

Claim 10. (Original) The pressure sensor of claim 9 wherein the backside opening forms a rounded square.

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Claim 11. (Currently amended) The ~~method~~ pressure sensor of claim 9 wherein the backside opening is shaped as a castle.

Claims 12-14 (Cancelled).

Claim 15. (Original) An absolute pressure sensor comprising:  
a diaphragm having a top and a bottom;  
a sidewall extending from the bottom of the diaphragm, the sidewall having an interior side forming a backside cavity having a backside opening, the interior side substantially orthogonal to the diaphragm; and  
a block covering the backside opening such that a hermetic seal is formed.

Claim 16. (Original) The absolute pressure sensor of claim 15 wherein the block is silicon.

Claim 17. (Original) The absolute pressure sensor of claim 15 wherein the block is glass.

Claim 18. (Original) The absolute pressure sensor of claim 15 wherein the glass block is covered with metal over the backside opening.

Claim 19 (Cancelled).

Claim 20. (Original) A silicon wafer comprising:  
a plurality of pressure sensors, each pressure sensor comprising:  
a diaphragm having a top and a bottom; and  
a sidewall extending from the bottom of the diaphragm, the sidewall having an interior side formed using a deep reactive ion etch and forming a backside cavity having a backside opening, the interior side substantially orthogonal to the diaphragm,  
wherein the plurality of pressure sensors includes approximately at least twenty-thousand pressure sensors,  
and wherein the silicon wafer is a 150mm (6 inch) wafer.

Claim 21. (Original) A pressure sensor apparatus comprising:

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exactly one pressure sensor in a housing, the exactly one pressure sensor comprising:

a diaphragm having a top and a bottom; and  
a sidewall extending from the bottom of the diaphragm, the sidewall having an interior side formed using a deep reactive ion etch and forming a backside cavity having a backside opening, the interior side substantially orthogonal to the diaphragm, wherein the diaphragm is less than 350 microns in length, and the diaphragm accounts for more than 10 percent of an area of the exactly one pressure sensor.

Claim 22. (Original) A pressure sensor comprising:  
a diaphragm having a top and a bottom;  
a sidewall extending from the bottom of the diaphragm, the sidewall having an interior side forming a backside cavity having a backside opening, the interior side substantially orthogonal to the diaphragm; and  
a cap attached to the top of the diaphragm,  
wherein the cap and diaphragm form a reference cavity.

Claim 23. (Original) The pressure sensor of claim 22 further comprising:  
a first electrode attached to the top of the diaphragm; and  
a second electrode attached to an underside of the cap,  
wherein the first electrode and the second electrode form a capacitor.

Claim 24. (Original) The pressure sensor of claim 22 further comprising a plurality of resistors in the top of the diaphragm, wherein the plurality of resistors form a piezoresistive sensing circuit.